



EICO  
MODEL HF-20



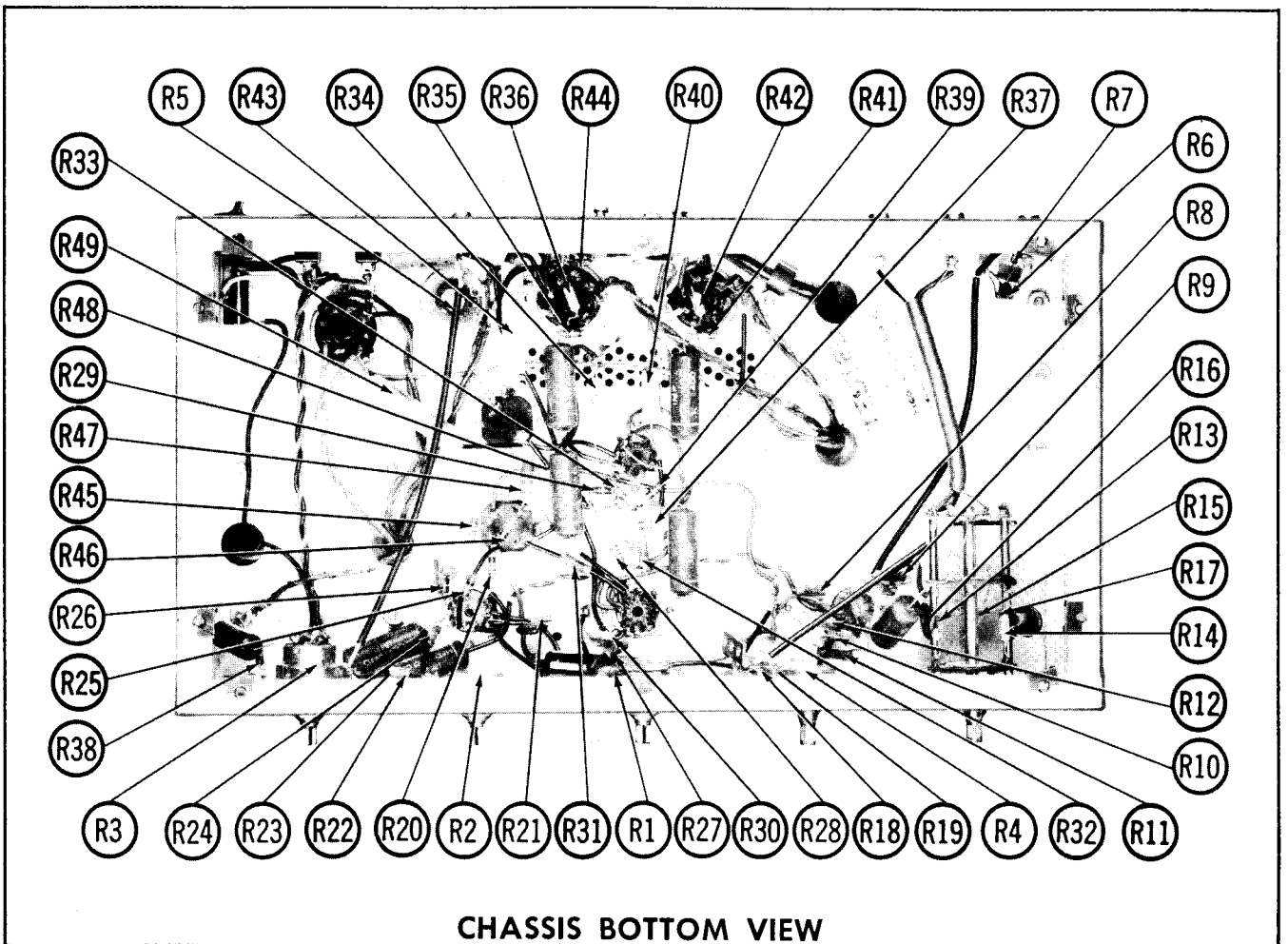
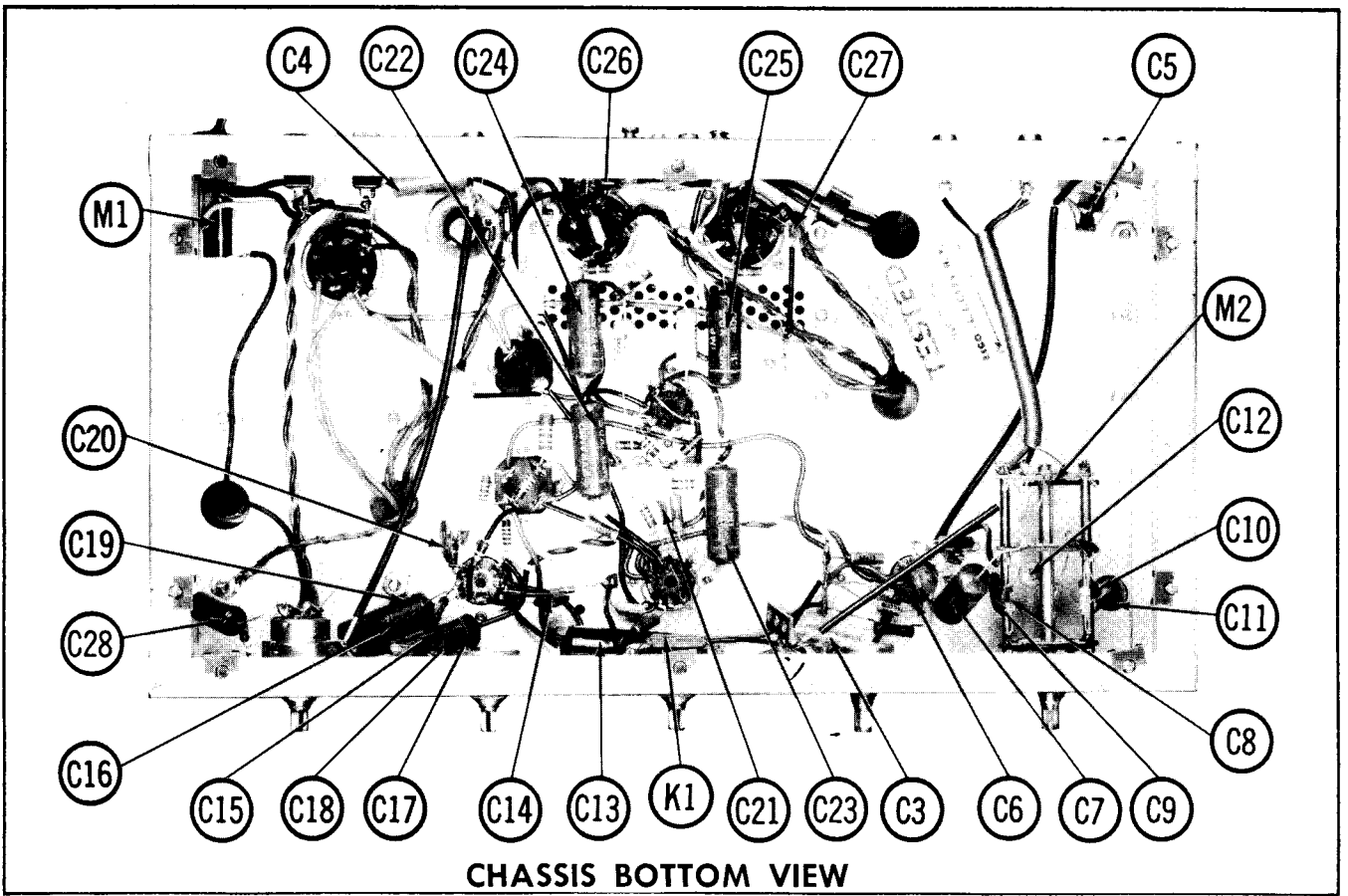
EICO  
MODEL HF-20

TRADE NAME	Eico Model HF-20		
MANUFACTURER	Electronic Instrument Co., Inc., 84 Withers St., Brooklyn 11, N. Y.		
TYPE SET	AC Operated 7 Tube Audio Amplifier		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	100 Watts, .9 Amp. @117 Volts AC

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

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# PARTS LIST AND DESCRIPTIONS TUBES

# CHASSIS—TOP VIEW

ITEM No.	USE	GENERAL ELECTRIC		RAYTHEON		SYLVANIA	
		TYPE	ITEM No.	USE	TYPE		
V1	Phono Pre-amplifier	ECC83(2AX7, 12AD7)*		Output	6L6GB		
V2	A.F. Amplifier	ECC83 (12AX7) *	V5	Output	6L6GB		
V3	A.F. Amp-Phase Inverter	ECC82 (12AU7A) *	V6	Rectifier	5U4GB		
V4	Driver	ECC82 (12AU7A) *	V7				

\* Alternate.

## ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
		CAP.	VOILT.	EICO PART No.	REMARKS	
C1A	.40	500	24008			
C1B	.20	500				
C2A	.20	450				
C2B	.20	450				
C2C	.10	350				
C3	10	350				
C4	50	50				

## FIXED CAPACITORS

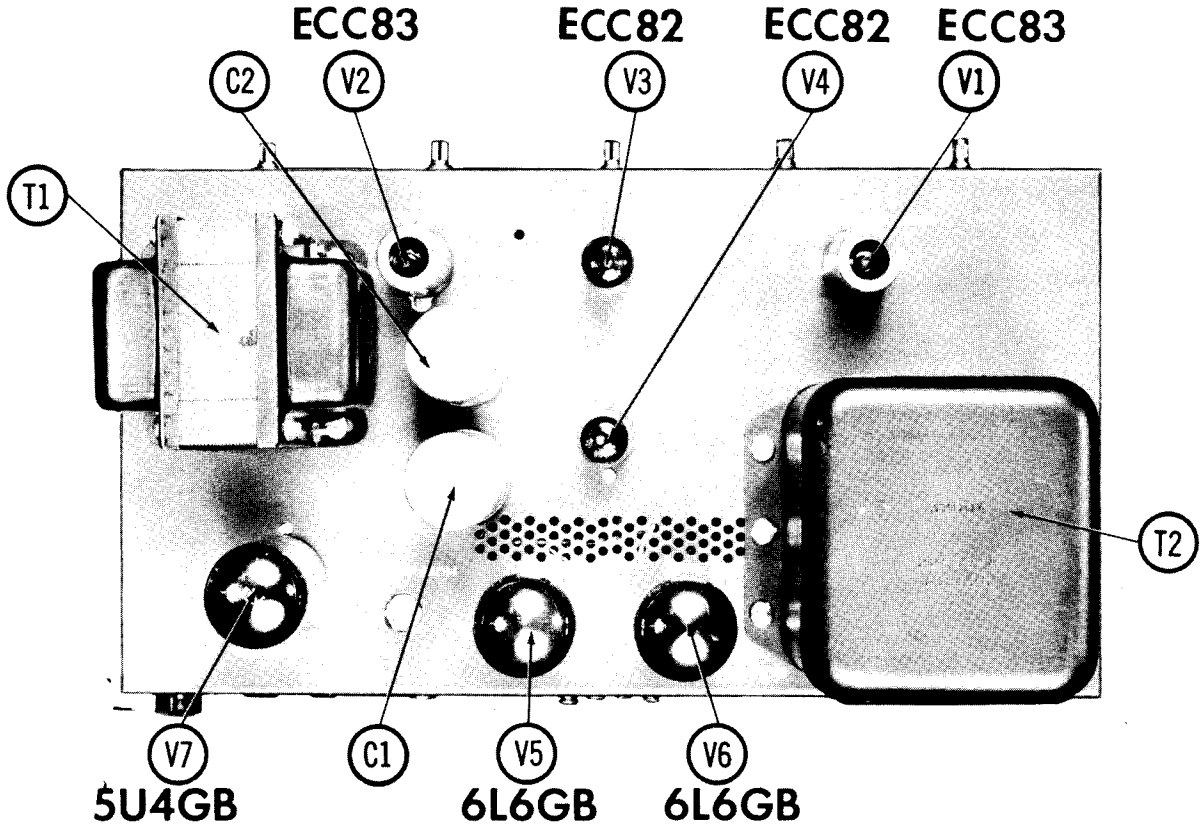
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REPLACEMENT DATA				REMARKS	CORNELL-DUBILIER PART No.	ELMENCOR PART No.	MALLORY PART No.	SPRAGUE PART No.
		AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.					
C5	.47									
C6	20000									
C7	.1 400V 10%									
C8	.850 10%									
C9	3300 10%									
C10	5000 10%									
C11	2700 10%									
C12	25 400V									
C13	.1 600V									
C14	.2200 10%									
C15	.1 400V 10%									
C16	2000									
C17	2000									
C18	2000									
C19	.1 400V 10%									
C20	2000									
C21	850 10%									
C22	.1 400V 10%									
C23	.1 400V 10%									
C24	.1 400V 10%									
C25	.1 400V 10%									
C26	100 10%									
C27	330 10%									
C28	.03 600V									

## CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		RESIST-ANCE	WATTS	EICO PART No.	REMARKS	
R1A	500K *					
R1B	Shaft					
R2A	Ineg					
R2B	Shaft					
R3A	500K					
R3B	250K Tap					
R3C	Switch					
R4A	500K					
R4B	Shaft					
R5A	100K					
R5B	Shaft					

\* Taps @ 150K, 300K.  
† Includes XL.



**CONTROLS**

RATING		REPLACEMENT DATA				INSTALLATION NOTES		
ITEM No.	RESISTANCE	WATTS	ETCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS - IIRC PART No.	MALLOY PART No.	
R1A	500K *	1/2	18021	CI-60 †		E20-133XX	UD2-283	Loudness
R1B	Shatt	1/2	18020	Not Req.		Q11-137	Not Req.	
R2A	1meg	1/2	18008	B-69	A47-1meg-S	Not Req.	U54	Bass
R2B	Shatt	1/2		Not Req.	KSS-3	Not Req.	Not Req.	
R3A	500K	1/2		BT-65	A47F3-500K	Q19-133X	UT-431	Treble
B	250K Tap			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch		18019	KR-1	SWE-12	76-1	US-26	Power Off-On
R4A	500K	1/2	18009	B-60	A47-500K-Z	Q13-133	U48	Level
R4B	Shatt			Not Req.	KSS-3	Not Req.	Not Req.	
R5A	100K	2(W/W)		WN-101	A43-100	W11-084	RI001L	
R5B	Shatt			Not Req.	FKS-1/4	SK5	Not Req.	Hum Balance

\* Taps @ 150K, 300K.  
† Includes KI.

**PARTS LIST AND DESCRIPTIONS (Continued)**

**RESISTORS**

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS	ITEM No.	RATING	REMARKS	ITEM No.	RATING	REMARKS
R6	68K		R21	1200K		R36	100K 5%	
R7	33K		R22	68K 5%		R37	470K	
R8	200K 5%		R23	68K 5%		R38	47K	
R9	1200K 5%		R24	470K 5%		R39	500K	
R10	375K 5%		R25	100K		R40	47K 2W	
R11	120K 5%		R26	3300K		R41	100K 5%	
R12	3400K 5%		R27	10K		R42	100K 5%	
R13	100K 5%		R28	47K		R43	350K 10W	
R14	100K 5%		R29	1500K		R44	10K	
R15	4.7meg 5%		R30	470K		R45	33K	
R16	560K 5%		R31	22K		R46	47K	
R17	2.2meg 5%		R32	22K		R47	33K 1W	
R18	56K		R33	470K		R48	22K	
R19	330K		R34	47K 2W		R49	600K 2.10W	
R20	33K		R35	100K				

**TRANSFORMER (POWER)**

ITEM No.	RATING		REPLACEMENT DATA					
	PRI.	SEC.	ETCO PART No.	Holdison PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triod PART No.
T1	11V @ .9A	740 VCT @ .105A	30016	24R22U		PC8410	24R22U	
	SEC. 3 6.3V @ 2.9A	SEC. 4	SEC. 5					

① Tape Green/yellow lead.

**TRANSFORMER (AUDIO OUTPUT)**

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES	
	PRI.	SEC.	ETCO PART No.	Holdison PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.		Triod PART No.
T2	750K @ 150K CT	16K Tap @ 4K CT	30004	22S43 ①	A-3101 ①		A-8072	22S43 ①	S-146A ①	① Drill New Mounting Holes



FCC83 VI

**COMPONENT COMBINATIONS**

ITEM No.	USE	DESCRIPTION	ETCO PART No.	REPLACEMENT DATA
K1	Loudness Comp.	100mmf, 200mmf, 450mmf, 450mmf, 50K, 50K		Aerovox Centralab Sprague PA-682 PC-324 TC-4

**FUSES**

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			ETCO PART No.	HOLDER	LITTE/FUSE PART No.	BUSS PART No.		
M1	3AG	2A	FUSE 91000	HOLDER 97800	FUSE 312002	HOLDER 341001	FUSE AGC 2	HOLDER HKP-CC
		250V			(3AG 2A 250V)			

**MISCELLANEOUS**

ITEM No.	PART NAME	ETCO PART No.	NOTES
M2	Switch	60038	Function Selector (Rotary Water Type)

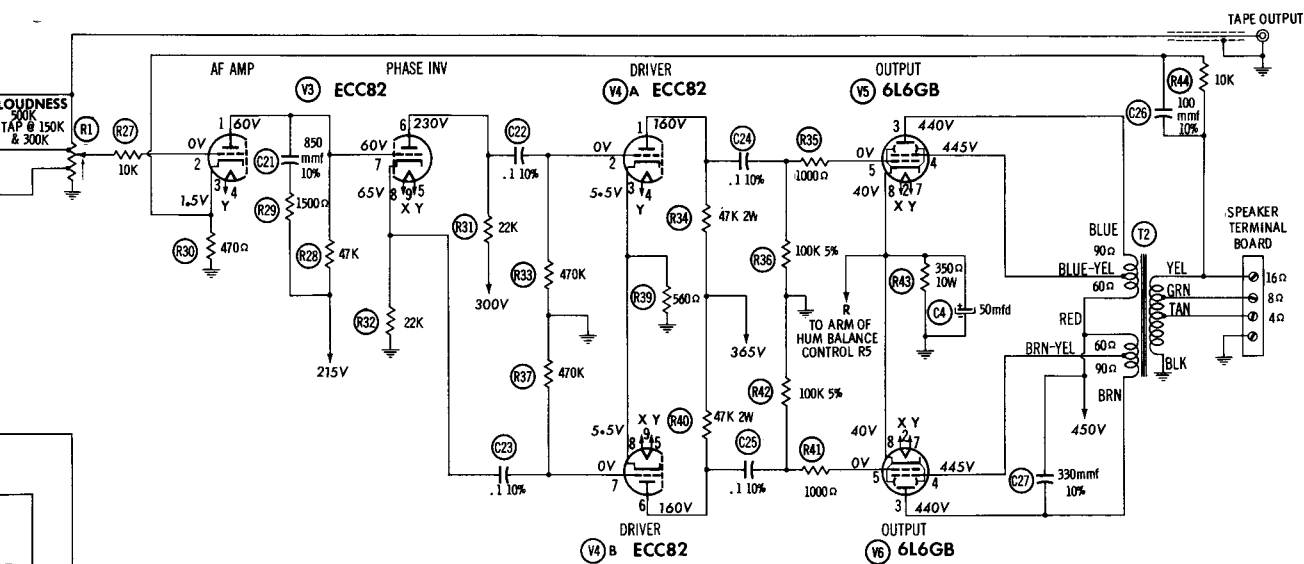
**CABINETS & CABINET PARTS**

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	33007	Round
Knob	33008	Round with 1/2" Shank

**WIRING DATA**

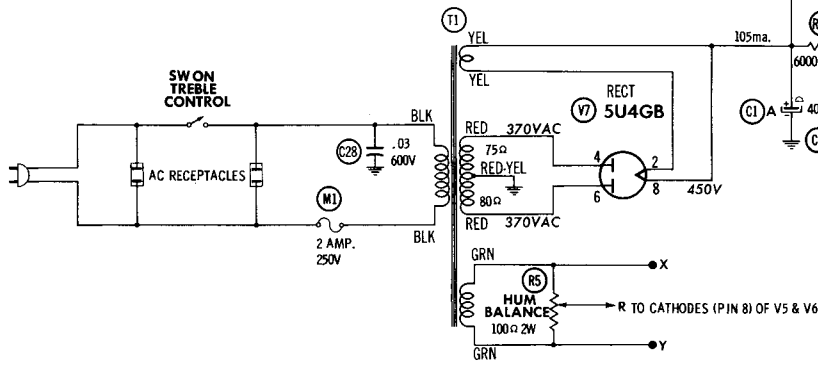
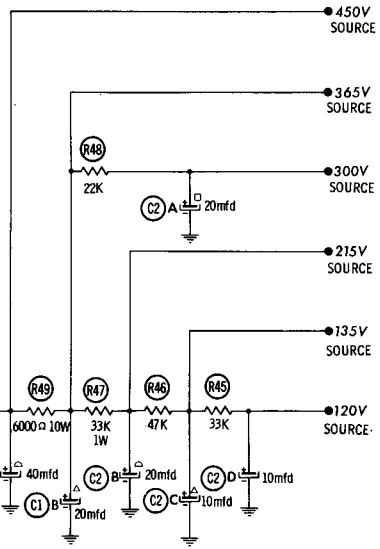
General-use Unshielded Hook-up Wire ..... Use BLDEN No. 8530 (Solid) Available in Ten Colors  
 Power Cord ..... Use BLDEN No. 8524 (Stranded) Available in Ten Colors  
 Use BLDEN No. 1765-B (6 Ft. Length)  
 Use BLDEN No. 1725-K (7 1/2 Ft. Length)



RESISTANCE READINGS

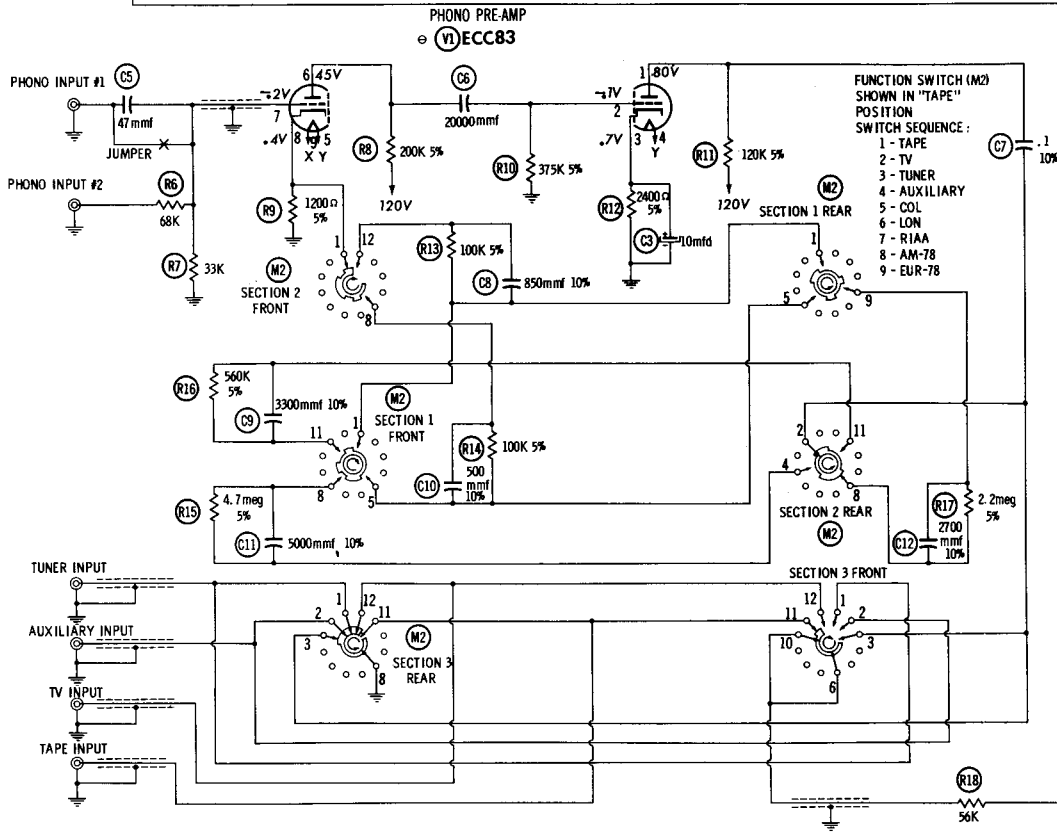
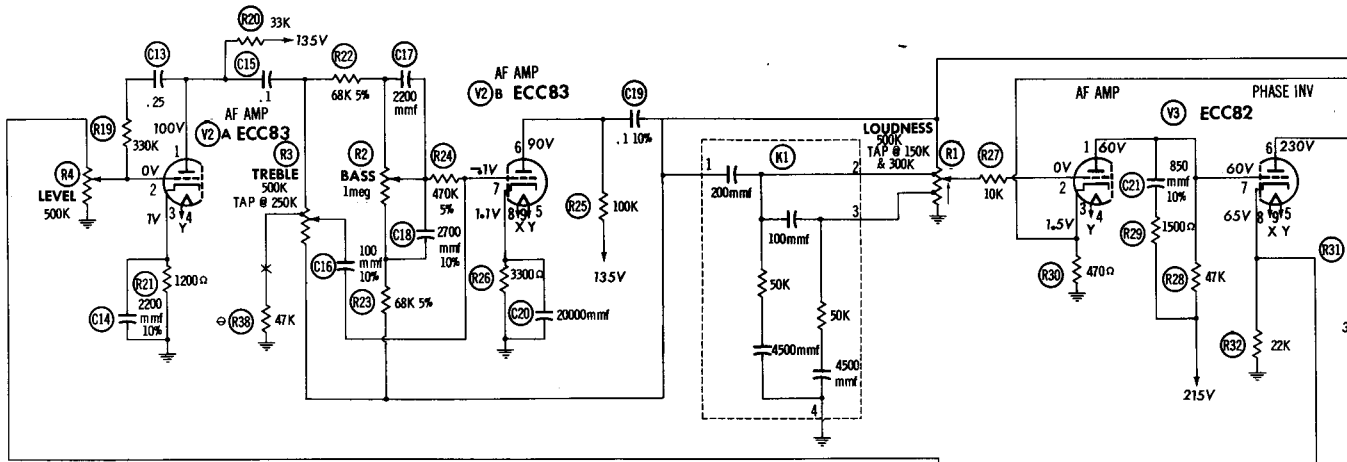
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC83	↑ 240K	375K	2400Ω	390Ω	390Ω	↑ 320K	33K	1200Ω	390Ω
V2	ECC83	↑ 120K	0Ω	1200Ω	390Ω	390Ω	↑ 185K	750K	3300Ω	390Ω
V3	ECC82	↑ 86K	10K	470Ω	390Ω	390Ω	↑ 50K	↑ 86K	22K	390Ω
V4	ECC82	↑ 53K	470K	560Ω	390Ω	390Ω	↑ 53K	470K	560Ω	390Ω
V5	6L6B	0Ω	390Ω	↑ 150Ω	↑ 60Ω	100K	TP	390Ω	350Ω	
V6	6L6B	0Ω	390Ω	↑ 150Ω	↑ 60Ω	100K	TP	390Ω	350Ω	
V7	5U4GB	NC	↑	NC	75Ω	NC	80Ω	NC	↑	

↑ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.  
 † MEASURED FROM PIN 8 OF V7.  
 NC NO CONNECTION TP FIE POINT



with vacuum tube voltmeter;  
 5 per volt.  
 bottom views.  
 in to common negative.  
 for voltage readings.  
 values makes possible a  
 resistance readings.  
 output load connected.

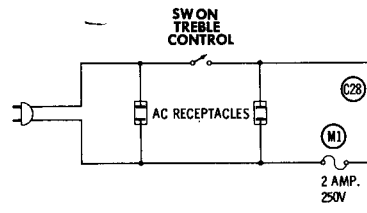
⊙ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION  
 DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM  
 ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4
V1	ECC83	† 240K	375K	2400Ω	390Ω
V2	ECC83	† 120K	0Ω	1200Ω	390Ω
V3	ECC82	† 86K	10K	470Ω	390Ω
V4	ECC82	† 53K	470K	560Ω	390Ω
V5	6L6B	0Ω	390Ω	† 150Ω	† 60Ω
V6	6L6B	0Ω	390Ω	† 150Ω	† 60Ω
V7	5U4GB	NC	†	NC	75Ω

† THIS READING WILL VARY DEPENDING UPON THE COND. MEASURED FROM PIN 8 OF V7.  
NC NO CONNECTION TP TIE



- DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance of component values makes possible a variation of ±1% in voltage and resistance readings.
- All controls at minimum, proper output load connected.